Payette River Subbasin - Dry Buck Creek, Anderson Creek, and Sand Hollow

Total Maximum Daily Load – *Escherichia coli*

Hydrologic Unit Code: 17050122

State of Idaho
Department of Environmental Quality
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Abbreviations, Acronyms, and Symbols

§303(d)	refers to section 303 subsection (d) of the Clean Water Act, or a list of impaired water bodies required by this section
§	section (usually a section of federal or state rules or statutes)
AU	assessment unit
BLM	Bureau of Land Management
BMP	best management practice
BURP	Beneficial Use Reconnaissance Program
CFR	Code of Federal Regulations (refers to citations in the federal administrative rules)
cfs	cubic feet per second
CFU	Colony Forming Unit
DEQ	Idaho Department of Environmental Quality
E. coli	Escherichia coli
EPA	United States Environmental Protection Agency
GIS	geographic information system
HUC	hydrologic unit code
IDAPA	Refers to citations of Idaho administrative rules
IDWR	Idaho Department of Water Resources
ISCC	Idaho Soil Conservation Commission
ISDA	Idaho State Department of Agriculture
LA	load allocation
LC	load capacity
mi	mile
mL	milliliter
MOS	margin of safety
NB	natural background
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PCR	primary contact recreation
QA	quality assurance
QC	quality control
SBA	subbasin assessment

SCR	secondary contact recreation
TMDL	total maximum daily load
USC	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USGS	United States Geological Survey
WAG	watershed advisory group
WBAG	*Water Body Assessment Guidance*
WLA	wasteload allocation

Executive Summary

The federal Clean Water Act requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and tribes, pursuant to Section 303 of the Clean Water Act, are to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the nation's waters whenever possible. Section 303(d) of the Clean Water Act establishes requirements for states and tribes to identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards).

States and tribes must periodically publish a priority list (a "§303(d) list") of impaired waters. Currently, this list is published every 2 years as the list of Category 5 water bodies in Idaho's Integrated Report. For waters identified on this list, states and tribes must develop a total maximum daily load (TMDL) for the pollutants, set at a level to achieve water quality standards. This document addresses three water bodies (three assessment units) in the Payette River subbasin that have been placed in Category 5 of Idaho's most recent federally approved Integrated Report (DEQ 2020).

This document describes the key physical and biological characteristics of the subbasin; water quality concerns and status; pollutant sources; and recent pollution control actions in the Payette River subbasin, located in southwest Idaho. For more detailed information about the subbasin and previous TMDLs, see the Lower Payette River Subbasin Assessment and Total Maximum Daily Load (DEQ 1999).

The TMDL analysis establishes water quality targets and load capacities, estimates existing pollutant loads, and allocates responsibility for load reductions needed to return listed waters to a condition meeting water quality standards. It also identifies implementation strategies—including reasonable time frames, approach, responsible parties, and monitoring strategies—necessary to achieve load reductions and meet water quality standards.

Subbasin at a Glance

The Payette subbasin, hydrologic unit code (HUC) 17050122, is located in southwest Idaho (Figure A). It encompasses a large area of nearly 600 square miles (380,000 acres), spanning from the western side of the West Mountains to the outlet of the Payette River and confluence with the Snake River; located in Payette, Idaho. The beginning of the HUC is located near the confluence of the North and South fork segments of the Payette River, near Banks, Idaho. The Payette River plays host to several smaller watersheds, including: Squaw Creek, Bissel Creek, Sandhollow Creek, Big Willow Creek, and Little Willow Creek; all of which enter the Payette River from the northern mountainous region of the subbasin. The subbasin also hosts Black Canyon Reservoir, a smaller reservoir (1029 acres) that diverts canals along the north and south side of the valley. The subbasin is very rural, with land use being dominated by agricultural production in the lower valley and grazing practices in the higher elevations.

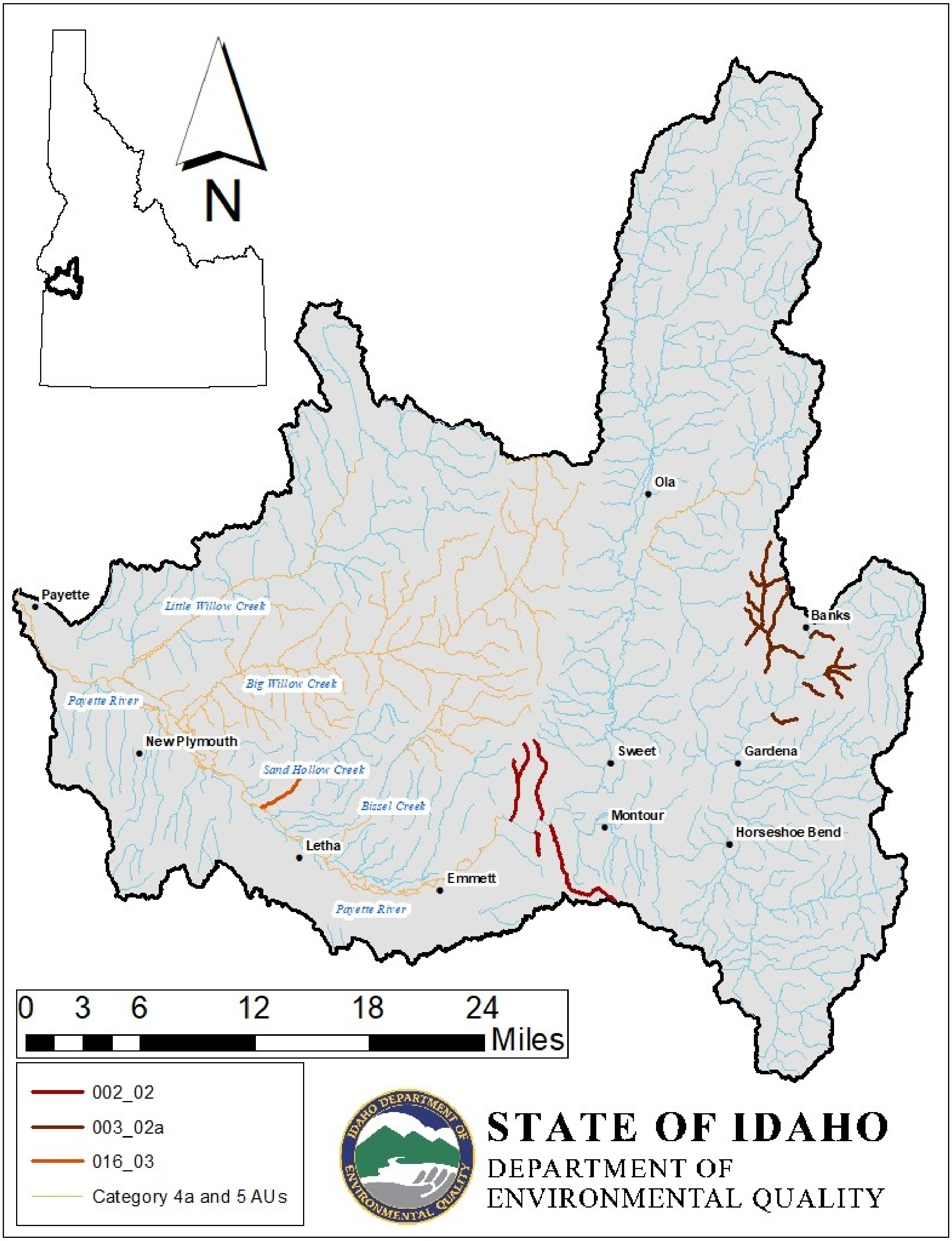

Figure A. Payette River subbasin.

Key Findings

There are currently three Assessment Units (AUs) in the Payette River subbasin listed for bacteria impairment. Historic data were used for the listing, and updated geometric means (geomean) were collected in 2020 for use in this Total Maximum Daily Load (TMDL). Idaho water quality standards (IDAPA 58.01.02) states that all surface waters designated for recreational use are not to exceed a geometric mean of 126 organisms per 100 milliliters of water, in regards to *Escherichia coli* concentrations, at any given time. All AUs sampled in 2020 were found to contain *E. coli* concentrations well above the criteria, and therefore a TMDL is required. Of the three AUs listed, all have relatively high current bacteria loads and require at least a 60% reduction in bacteria. Anderson Creek has the highest observed geomean, but also demonstrates the lowest critical flows annually; with questions regarding its perennial status. During irrigation, Sand Hollow may act more as an agricultural drain than a creek hydrologically, and therefore the estimated critical low flows may be significantly underestimated. Samples collected from Sand Hollow in 2020 were sampled during irrigation season, and flows were observed to be much higher than estimated in the variable flow model. Therefore, the geomean observed during irrigation season may be higher during non-irrigation months. Table A lists water bodies receiving bacteria TMDLs in this document.

Table A. Water bodies and pollutants for which TMDLs were developed.

Water Body	Assessment Unit Number	Pollutant(s)
Tributaries to Black Canyon Reservoir (Anderson Creek)	002_02	*Escherichia coli*
Dry Buck, Peterson & Fleming Creeks - 1st & 2nd order	003_02a	*Escherichia coli*
Sand Hollow - 3rd order	016_03	*Escherichia coli*

Note: All assessment unit numbers begin with ID17050122SW.

Table B. Summary of assessment outcomes for §303(d)-listed assessment units.

Assessment Unit Name	Assessment Unit Number	Pollutant	TMDL(s) Completed	Recommended Changes to Next Integrated Report	Justification
Tributaries to Black Canyon Reservoir - Anderson Creek	002_02	*Escherichia coli*	Yes	List in Category 4a for *Escherichia coli*	*Escherichia coli* TMDL completed
Dry Buck, Peterson and Fleming Creeks - 1st and 2nd order	003_02a	*Escherichia coli*	Yes	List in Category 4a for *Escherichia coli*	*Escherichia coli* TMDL completed
Sand Hollow - 3rd order	016_03	*Escherichia coli*	Yes	List in Category 4a for *Escherichia coli*	*Escherichia coli* TMDL completed

Note: All assessment unit numbers begin with ID17050122SW.

Public Participation

The general public was provided an opportunity to comment on this document during the public comment period (July 6, 2021 – August 6, 2021). Additional review and comments were made to early drafts of this document by the Payette River Watershed Advisory Group, in order to help inform the TMDL process.

Introduction

This document addresses three water bodies in the Payette River subbasin that have been placed in Category 5 of Idaho's most recent federally approved Integrated Report (DEQ 2020). The purpose of this total maximum daily load (TMDL) is to characterize and document pollutant loads within the Payette River subbasin. The first portion of this document presents key characteristics or updated information for the subbasin assessment, which is divided into four major sections: subbasin characterization (section 1), water quality concerns and status (section 2), pollutant source inventory (section 3), and a summary of past and present pollution control efforts (section 4). While the subbasin assessment is not a requirement of the TMDL, DEQ performs the assessment to ensure impairment listings are up to date and accurate.

The subbasin assessment is used to develop a TMDL for each pollutant of concern for the Payette River subbasin. The TMDL (section 5) is a plan to improve water quality by limiting pollutant loads. Specifically, a TMDL is an estimation of the maximum pollutant amount that can be present in a water body and still allow that water body to meet water quality standards (40 CFR Part 130). Consequently, a TMDL is water body- and pollutant-specific. The TMDL also allocates allowable discharges of individual pollutants among the various sources discharging the pollutant.

Regulatory Requirements

This document was prepared in compliance with both federal and state regulatory requirements. The federal government, through the United States Environmental Protection Agency (EPA), assumed the dominant role in defining and directing water pollution control programs across the country. The Idaho Department of Environmental Quality (DEQ) implements the Clean Water Act in Idaho, while EPA oversees Idaho and certifies the fulfillment of Clean Water Act requirements and responsibilities.

Congress passed the Federal Water Pollution Control Act, more commonly called the Clean Water Act, in 1972. The goal of this act was to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 USC §1251). The act and the programs it has generated have changed over the years as experience and perceptions of water quality have changed. The Clean Water Act has been amended 15 times, most significantly in 1977, 1981, and 1987. One of the goals of the 1977 amendment was protecting and managing waters to ensure "swimmable and fishable" conditions. These goals relate water quality to more than just chemistry.

The Clean Water Act requires that states and tribes restore and maintain the chemical, physical, and biological integrity of the nation's waters. States and tribes, pursuant to Section 303 of the Clean Water Act, are to adopt water quality standards necessary to protect fish, shellfish, and wildlife while providing for recreation in and on the nation's waters whenever possible. DEQ must review those standards every 3 years, and EPA must approve Idaho's water quality standards. Idaho adopts water quality standards to protect public health and welfare, enhance water quality, and protect biological integrity. A water quality standard defines the goals of a water body by designating the use or uses for the water, setting criteria necessary to protect those uses, and preventing degradation of water quality through antidegradation provisions.

Section 303(d) of the Clean Water Act establishes requirements for states and tribes to identify and prioritize water bodies that are water quality limited (i.e., water bodies that do not meet water quality standards). States and tribes must periodically publish a priority list (a "§303(d) list") of impaired waters. Currently, this list is published every 2 years as the list of Category 5 waters in Idaho's Integrated Report. For waters identified on this list, states and tribes must develop a TMDL for the pollutants, set at a level to achieve water quality standards.

DEQ monitors waters, and for those not meeting water quality standards, DEQ must establish a TMDL for each pollutant impairing the waters. However, some conditions that impair water quality do not require TMDLs. EPA considers certain unnatural conditions—such as flow alteration, human-caused lack of flow, or habitat alteration—that are not the result of discharging a specific pollutant as "pollution." TMDLs are not required for water bodies impaired by pollution, rather than a specific pollutant. A TMDL is only required when a pollutant can be identified and in some way quantified.

1 Subbasin Characterization

The Payette River subbasin (Figure 1) flows southwest from the confluence of the North and South Forks of the Payette River, until the mouth at the Snake River in the town of Payette, Idaho. The subbasin is approximately 1,225 square miles (783,702 acres), and includes several major tributaries that flow primarily from the northern mountainous region of the subbasin. Significant tributaries include Squaw Creek, which flows from the western side of the West Mountains south to Black Canyon Reservoir; Bissel Creek, which flows into the Payette River west of the town of Emmett, Idaho; Sand Hollow Creek, Little Willow Creek, and Big Willow Creek; which is the largest tributary (6^{th} order) to the Lower Payette River. 262 square miles of the subbasin can be classified as forested land, while the remaining 963 square miles can be classified as rangeland. The majority of forested land lies in the eastern portion of the watershed, while the central and western portions are primarily rangelands. Land use in the watershed is dominated by agricultural and grazing uses, although recreational uses can be found in much of the public forested lands and upper rangelands. The watershed holds a population of around 20,000 people, and four major municipalities fall directly on or near the main stem Payette (Horseshoe Bend, Emmett, New Plymouth, and Payette). The Lower Payette River currently has a 2000 TMDL for bacteria impairment, and there are three major tributaries within the Lower Payette watershed with existing TMDLs for temperature and sediment impairments. Pollutants of concern in the subbasin are water temperature, bacteria (*E. coli)*, and sedimentation/siltation. Impairments for these pollutants are pertinent to much of the subbasin, and are likely sourced from land use practices and flow alterations within the subbasin. This document will focus on bacteria impairments in the subbasin.

This document will focus on three tributaries to the Lower Payette River; Dry Buck Creek, Anderson Creek, and Sand Hollow. Dry Buck Creek is a second order perennial stream that flows into the Payette River about two miles below Banks, Idaho. It is a smaller assessment unit, with just less than 30 miles of stream in the AU. The headwaters begin in drier open range meadows nested below Dry Buck Mountain, and flow north to south experiencing significant elevation change in the last one and a half miles before flowing into the Payette; about 1,400 feet in 1.5 miles. The watershed is very rural, with few inhabitants along the creek. Gravel/dirt roads travel beside much of the creek throughout the watershed.

Anderson Creek and Sand Hollow both flow into the Payette River near the town of Emmett, Idaho. Anderson Creek flows directly into Black Canyon Reservoir, and the AU is also described as Tributaries to Black Canyon Reservoir because it includes several tributaries. Of those tributaries making up the AU, Anderson Creek was sampled based on available flow and historical bacteria impairments. Anderson Creek is a second order 6.3 mile creek flowing south to north. The creek flows almost entirely through desert foothills, and is classified as perennial; however, observed flows have subsided by the end of July in 2019 and 2020. The creek flows over mostly private land, with patches owned by the Bureau of Land Management (BLM) and State. Sand Hollow flows north to south, meeting the Payette River on the north side about eleven miles west of Emmett, Idaho. The listed AU for Sand Hollow makes up the bottom 2.7 miles of the Sand Hollow watershed. It flows entirely through private land used for agricultural production.

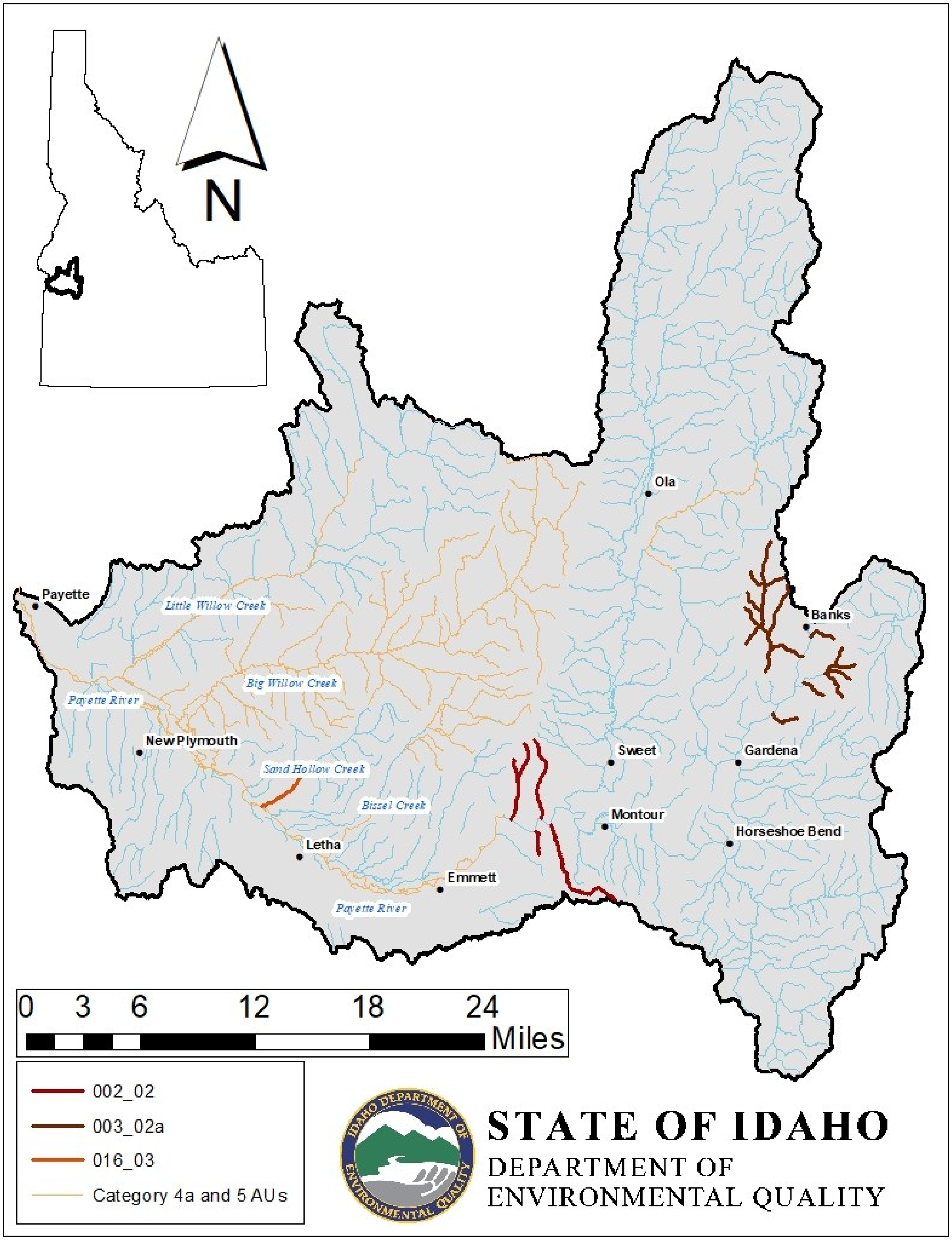

Figure 1. Payette River subbasin.

2 Water Quality Concerns and Status

2.1 Water Quality Limited Assessment Units Occurring in the Subbasin

Section 303(d) of the Clean Water Act states that waters that are unable to support their beneficial uses and do not meet water quality standards must be listed as water quality limited. Subsequently, these waters are required to have TMDLs developed to bring them into compliance with water quality standards.

2.1.1 Assessment Units

AUs are groups of similar streams that have similar land use practices, ownership, or land management. However, stream order is the main basis for determining AUs—even if ownership and land use change significantly, the AU usually remains the same for the same stream order.

Using AUs to describe water bodies offers many benefits; primarily that all waters of the state are defined consistently. AUs are a subset of water body identification numbers, which allows them to relate directly to the water quality standards.

2.1.2 Listed Waters

Table 1 shows the pollutants listed and the basis for listing for each bacterium §303(d)-listed AU in the subbasin (i.e., AUs in Category 5 of the Integrated Report).

Table 1. Payette River subbasin §303(d)-listed assessment units in the subbasin.

Assessment Unit Name	Assessment Unit Number	Listed Pollutants	Listing Basis
Tributaries to Black Canyon Reservoir (Anderson Creek)	002_02	*Escherichia coli*	Geomean exceeds state WQS (126 CFU/ 100mL)
Dry Buck, Peterson & Fleming Creeks - 1st & 2nd order	003_02a	*Escherichia coli*	Geomean exceeds state WQS (126 CFU/ 100mL)
Sand Hollow - 3rd order	016_03	*Escherichia coli*	Geomean exceeds state WQS (126 CFU/ 100mL)

Note: All assessment unit numbers begin with ID17050122SW.

2.2 Applicable Water Quality Standards and Beneficial Uses

Idaho water quality standards (IDAPA 58.01.02) list beneficial uses and set water quality goals for waters of the state. Idaho water quality standards require that surface waters of the state be protected for beneficial uses, wherever attainable (IDAPA 58.01.02.050.02). These beneficial uses are interpreted as existing uses, designated uses, and presumed uses as described briefly in Appendix A. The *Water Body Assessment Guidance* (DEQ 2016) provides a more detailed description of beneficial use identification for use assessment purposes.

Beneficial uses include the following:

- Aquatic life support—cold water, seasonal cold water, warm water, salmonid spawning, and modified
- Contact recreation—primary (e.g., swimming) or secondary (e.g., boating)
- Water supply—domestic, agricultural, and industrial
- Wildlife habitats
- Aesthetics

2.2.1 Beneficial Uses in the Subbasin

Primary beneficial uses affected in the Payette River Subbasin include: Cold Water Aquatic Life, Salmonid Spawning, Primary Contact Recreation, and Secondary Contact Recreation. Beneficial uses affected by this TMDL are listed in Table 2. Primary and secondary contact recreations are the most sensitive uses in regards to *E. coli* impairments.

Table 2. Payette River subbasin beneficial uses of §303(d)-listed streams.

Assessment Unit Name	Assessment Unit Number	Beneficial Uses[a]	Type of Use
Tributaries to Black Canyon Reservoir (Anderson Creek	002_02	PCR	Designated
Dry Buck, Peterson & Fleming Creeks - 1st & 2nd order	003_02a	PCR	Designated
Sand Hollow - 3rd order	016_03	SCR	Presumed

Note: All assessment unit numbers begin with ID17050122SW.
[a] Primary contact recreation (PCR), Secondary contact recreation (SCR)

2.2.2 Protection of Downstream Uses

The AUs discussed in this TMDL act as tributaries to the Payette River, which is designated for primary contact recreation and domestic water supply uses. Upon completion, this TMDL will address primary and secondary contact recreation numeric criterion in three waterbodies; while domestic water supply uses are assumed to be protected by drinking water treatment prior to consumption. When the TMDL is fully implemented, these waterbodies will deliver *E. coli* concentrations that are less than or equal to 126 *E. coli*/ 100mL of water to the Payette River. In meeting primary and secondary contact recreation criterion in these three waterbodies, this TMDL ensures that the Payette River is further protected for recreational uses within its tributaries and downstream.

2.2.3 Water Quality Criteria to Support Beneficial Uses

Beneficial uses are protected by a set of water quality criteria, which include *numeric* criteria for pollutants such as bacteria, dissolved oxygen, pH, ammonia, temperature, and turbidity (Appendix B), and *narrative* criteria for pollutants such as sediment and nutrients (IDAPA 58.01.02.250–251). Specifically for bacteria, Idaho water quality standards (IDAPA 58.01.02) states that all surface waters designated for recreational use are not to exceed a geometric mean of 126 organisms per 100 milliliters of water, in regards to *Escherichia coli* concentrations, at any given time.

DEQ's procedure to determine whether a water body fully supports designated and existing beneficial uses is outlined in IDAPA 58.01.02.050.02. The procedure relies heavily upon biological parameters and is presented in detail in the *Water Body Assessment Guidance* (Grafe et al. 2002). This guidance requires DEQ to use the most complete data available to make beneficial use support status determinations.

2.3 Summary and Analysis of Existing Water Quality Data

This section will review additional data used in support of the development of *E. coli* TMDLs for Dry Buck Creek, Anderson Creek, and Sand Hollow.

Numeric criteria for bacteria are set by Idaho's water quality standards (IDAPA 58.01.02), which are not to exceed 126 *E. coli* organisms per 100 milliliters of water based on the geometric mean of five samples taken 3 to 7 days apart over a 30-day period. This criterion applies to both primary and secondary contact recreation; results are shown in Table 3.

Prior to 2020 sampling, *E. coli* samples were initially collected in Dry Buck Creek in 2015 through Idaho's Beneficial Use Reconnaissance Program (BURP), which collected a single *E. coli* sample on July 9, 2015 that had a concentration of 2,419.6 CFU/100 mL. This concentration exceeded the single sample threshold and triggered the sampling for a geometric mean, which was collected between August 11 and August 28th of the same year. A geometric mean of 1,840 CFU/100mL, exceeded the State criteria of 126 CFU/100 mL *E. coli*; ultimately leading to a category 5 listing in the following Integrated Report (IR). New samples were collected and a new geometric mean was calculated in 2020 in preparation for this TMDL. Anderson Creek was sampled in 2004 for *E. coli*; however, the frequency of samples taken does not meet the criterion for calculating a geometric mean as outlined in the water quality standards. Though a geometric mean was not calculated, individual results indicated impairment because the single sample threshold was exceeded on each. Data from 2004 also indicated localized impacts from livestock, as it is noted that samples in 2004 were collected above and below a cattle operation; which was not observed in 2019 or 2020. The site was visited on August 6, 2019, for *E. coli* sample collection, though the creek was observed to be dry and no samples were taken.

DEQ collected bacteria samples in 2020 in accordance with the Standard Operating Procedures for Sampling *Escherichia coli* in Surface Water (DEQ, 2012). The site was revisited in late June 2020, in hopes of observing water. A geometric mean was calculated for the site based on 2020 sampling, though the creek was mostly dry by the final sample taken in the middle of July. No cattle were observed during 2019 or 2020 sampling, though other livestock are present in and around the creek.

Table 3. *E. coli data and* geometric mean results from 2020 monitoring in the Payette River subbasin

Assessment Unit	Creek Name	Date Sampled	Result
ID17050122SW002_02	Anderson Creek	6/29/2020	2420
ID17050122SW002_02	Anderson Creek	7/2/2020	770
ID17050122SW002_02	Anderson Creek	7/6/2020	2420
ID17050122SW002_02	Anderson Creek	7/9/2020	2420
ID17050122SW002_02	Anderson Creek	7/13/2020	2420
		Geomean	**1925**
ID17050122SW003_02a	Dry Buck Creek	6/29/2020	1120
ID17050122SW003_02a	Dry Buck Creek	7/2/2020	185
ID17050122SW003_02a	Dry Buck Creek	7/6/2020	411
ID17050122SW003_02a	Dry Buck Creek	7/9/2020	222
ID17050122SW003_02a	Dry Buck Creek	7/13/2020	228
		Geomean	**336**
ID17050122SW016_03	Sand Hollow	6/29/2020	1553
ID17050122SW016_03	Sand Hollow	7/2/2020	157
ID17050122SW016_03	Sand Hollow	7/6/2020	727
ID17050122SW016_03	Sand Hollow	7/9/2020	517
ID17050122SW016_03	Sand Hollow	7/13/2020	461
		Geomean	**531**

2.3.1 Status of Beneficial Uses

This document provides calculated TMDLs for *E. coli* in the Payette River Subbasin. TMDLs are based on Category 5 listed AUs found in the 2018/2020 Integrated Report (DEQ, 2020). Bacteria concentrations found in excess of state standards will impact beneficial uses within the subbasin; in this case, contact recreation. AUs addressed in this TMDL fall in both private and public lands, which are both impacted by livestock access and grazing near streams. This access can potentially impact beneficial uses for contact recreation by increasing bacteria concentrations within the stream.

2.3.2 Assessment Unit Summary

A summary of the data analysis, literature review, and field investigations and a list of conclusions for AUs included in Category 5 of the 2018/2020 Integrated Report follows. This section includes changes that will be documented in the next Integrated Report once the TMDLs in this document have been approved by EPA.

2.3.2.1 Assessment Units Addressed in TMDLs

ID107050122SW003_02a, Dry Buck, Peterson & Fleming Creeks - 1st & 2nd order

- Listed for *E. coli*.
- Data indicates an exceedance in contact recreation criteria for bacteria.
- Move to Category 4a for *E. coli.*

ID107050122SW002_02, **Tributaries to Black Canyon Reservoir (Anderson Creek)**

- Listed for *E. coli*.
- Data indicates an exceedance in contact recreation criteria for bacteria.
- Move to Category 4a for *E. coli.*

ID107050122SW016_03, **Sand Hollow - 3rd order**

- Listed for *E. coli*.
- Data indicates an exceedance in contact recreation criteria for bacteria.
- Move to Category 4a for *E. coli.*

3 Pollutant Source Inventory

Pollution within the Payette River subbasin is primarily from *E. coli* bacteria. Load allocations for bacteria are provided in this document.

3.1 Point Sources

No permitted point sources of *E. coli* are found to have potential discharges to the AUs analyzed as part of this TMDL. DEQ does not anticipate additional point sources added to these AUs in the immediate future, due to current land uses and characteristics surrounding the streams. Subbasin characteristics and land uses are discussed earlier within this document, and can also be reviewed in the 1999 Subbasin Assessment and TMDL (DEQ, 1999).

3.2 Nonpoint Sources

E. coli concentrations observed within this TMDL are contributed by various nonpoint sources within the Payette River subbasin. *E. coli* is an intestinal bacterium found commonly in warm-blooded animals. Livestock and wildlife within the subbasin may contribute *E. coli* to streams through defecation in or near the water. Elevated *E. coli* concentrations are often associated with riparian grazing and related streambank erosion, and can also be attributed to concentrated animal operations near the stream. Sand Hollow Creek flows through the Rim Fire Ranch and Sage Dairy, located about 1.5 miles upstream of the Sand Hollow monitoring location. In 2011 an expansion of Rim Fire Ranch was proposed and approved, increasing the capacity of the facility from 400 animals to 4000. In 2012, the property was found to be in violation of Idaho Groundwater Quality Rule IDAPA 58.01.11.400.01, which was based on nitrate and nitrate isotope data linking the property to elevated groundwater impairments. Due to the livestock pens/corrals, manure stock piles, manure drying areas, wastewater lagoons, tailwater return ponds, and land application of wastewater and manure in the vicinity of Sand Hollow Creek; the Rim Fire Ranch and Sage Dairy property are considered a likely source of bacteria to the creek. Additionally, during monitoring for this TMDL, livestock were observed in and around two of the AUs. On July 6th, domestic goats were observed directly in and around Anderson Creek during sampling; immediately upstream of the monitoring location. On July 9th, cattle were observed at the sampling site on Dry Buck Creek, along with fresh manure in the creek and on the banks.

Human-caused nonpoint sources within the subbasin can be attributed to various land-use practices. Such practices include: irrigated and dryland pasture; non-permitted urban/suburban land uses including runoff from impervious surfaces and construction activities; individual septic systems; and recreational uses, both land and water-based activities. Though human-caused sources can be a significant contributor of *E. coli* to a watershed, bacteria sources in this TMDL are more likely linked to livestock; given the primary land uses around the waterbodies.

Historical fires within the subbasin can contribute increased *E. coli* concentrations to streams. As a result of wildland fires, increased overland flow and erosion within the subbasin can potentially transport additional pollutants to and from streams. In 2017, a wildfire burned 250 acres near the town of Sweet, Idaho. Though fires like this can contribute increased *E. coli* concentrations to downstream waterbodies, this fire would not have a direct impact on the data collected from the AUs in this TMDL.

3.3 Pollutant Transport

Pollutant transport refers to the pathway by which pollutants move from the pollutant source to cause a problem or water quality violation in the receiving water body. Bacteria can be transported to a waterbody from either direct or indirect contact with the stream. Direct contact occurs when bacteria, which are found either directly within the high water mark or immediately adjacent, come into contact with the stream. This typically comes from defecation from warm-blooded animals within the stream or within the streambanks. Indirect contact includes bacteria that are transported from non-proximal sources, typically through the process of overland run-off directly to the stream; and/or connected irrigation and pond drains. Nonpoint sources are typically not required to apply for a discharge permit, but are encouraged to implement pollution control efforts.

4 Summary of Past and Present Pollution Control Efforts and Monitoring

Since the original TMDL was completed in 1999 for the Payette River Subbasin, the Gem, Payette, and Squaw Soil and Water Conservation Districts have secured funding from multiple sources to implement water quality improvement projects throughout the subbasin. Agricultural sources of sediment, bacteria, and excess nutrients include erosion from surface-irrigated cropland and pastures, runoff from animal feedlots, livestock grazing on or near waterways, and erosion in drainage ditches from maintenance activities. Best management practices (BMPs) are selected to reduce streambank and irrigation-induced erosion; contain and filter sediment, nutrients, and bacteria from irrigation wastewater; contain and properly dispose of animal wastes; and reduce the leaching of nutrients and pesticides. Effective implementation of BMPs on croplands, feedlots, and pasturelands can ultimately result in improved water quality; and achievements in basin-wide water quality goals. A list of implementation projects which have been completed or are on-going are provided in Table 4.

Table 4. §319 BMP implementation projects in the Payette River Subbasin.

Funding Year	Project Name	BMP	Designated Management Area
2003	Lower Payette River TMDL Implementation	Multiple	Gem Soil and Water Conservation District
2004	Gem County Stormwater Management Demo	Watershed Management Planning	Gem Soil and Water Conservation District
2006	Lower Payette River TMDL Implementation - Phase 2	Multiple	Gem Soil and Water Conservation District
2006	Mid Snake – Payette Clean Water Project – Phase 1	Sediment Basin	Payette Soil and Water Conservation District
2009	Lower Payette River TMDL Implementation - Phase 3	Multiple	Gem Soil and Water Conservation District
2013	Middle Snake-Payette Clean Water Project - Phase 2	Multiple	Payette Soil and Water Conservation District
2016	Lower Payette River TMDL Implementation - Phase 4	Multiple	Gem and Squaw Creek Soil and Water Conservation District
2017	Lower Payette River TMDL Implementation - Phase 5	Multiple	Gem Soil and Water Conservation District
2019	Middle Snake-Payette Clean Water Project - Phase 3	Sprinkler Systems	Payette Soil and Water Conservation District
2019	Lower Payette River TMDL Implementation - Phase 6	Sprinkler Systems	Gem Soil and Water Conservation District

4.1 Water Quality Monitoring

DEQ's Beneficial Use Reconnaissance Program (BURP) monitoring occurred most recently in one of the three AUs; while Sand Hollow has no history of BURP monitoring. The purpose of BURP is to help Idaho meet the requirements of the federal Clean Water Act by monitoring and determining the support status of Idaho's water bodies. BURP conducts monitoring activities at selected sites, emphasizing sampling and analysis to support assessments of biological assemblages and physical habitat structure of streams. These assessments support the characterization of individual stream integrity and the total quality of Idaho's waters (DEQ, 2016c).

In 2015, BURP conducted monitoring in Dry Buck Creek, which included bacteria sampling. A single sample exceedance (2,420 CFU/100mL) was collected from the AU and was followed by a five-sample geomean; per Idaho water quality standards (IDAPA 58.01.02.251.01). The geomean significantly exceeded the 126 CFU/100mL criteria (1,840 CFU/100mL), which resulted in the AUs 303(d) listing. Additional monitoring of the AU occurred in 2020, in order to collect updated geomeans for this TMDL. Bacteria monitoring occurred in Anderson Creek in 2004, which indicated significant concentrations of *E. coli* present in the creek. These samples resulted in the AU being 303(d) listed for *E. coli* impairment. In 2019, DEQ monitoring included updated *E. coli* geomeans from Anderson Creek; however, multiple visits resulted in little to no flow observed in the creek. No samples were collected at the site. DEQ returned in 2020 and collected an updated geomean used in this TMDL.

There is no history of BURP monitoring in Sand Hollow; however, DEQ monitored Sand Hollow in 2018 as part of a collaborative project with the Soil and Water Conservation Commission in Gem County. The monitoring mirrored efforts made ten years prior by the Idaho State Department of Agriculture (ISDA), which was designed to evaluate changes in the subbasin in regards to BMP implementation. Bacteria samples were collected bi-weekly and evaluated for single sample exceedances, but a geomean was never calculated. Single sample threshold exceedances were observed in one of the nine samples collected. Samples collected in 2020 were collected at a separate location further upstream from those collected in 2018. Both sites are representative of the land use around the AU, however; the stream below the 2020 site has visibly more riparian growth and a small pond caused by a private dam. These two characteristics could explain the lower bacteria concentrations observed in 2018.

5 Total Maximum Daily Loads

A TMDL prescribes an upper limit (i.e., load capacity) on discharge of a pollutant from all sources to ensure water quality standards are met. It further allocates this load capacity among the various sources of the pollutant. Pollutant sources fall into two broad classes: point sources, each of which receives a wasteload allocation, and nonpoint sources, each of which receives a load allocation. Natural background contributions, when present, are considered part of the load allocation but are often treated separately because they represent a part of the load not subject to control. Because of uncertainties about quantifying loads and the relation of specific loads to attaining water quality standards, the rules regarding TMDLs (40 CFR Part 130) require a margin of safety be included in the TMDL. Practically, the margin of safety and natural background are both reductions in the load capacity available for allocation to pollutant sources.

Load capacity can be summarized by the following equation:

$$LC = MOS + NB + LA + WLA = TMDL$$

Where:

LC = load capacity
MOS = margin of safety
NB = natural background
LA = load allocation
WLA = wasteload allocation

The equation is written in this order because it represents the logical order in which a load analysis is conducted. First, the load capacity is determined. Then the load capacity is broken down into its components. After the necessary margin of safety and natural background, if relevant, are quantified, the remainder is allocated among pollutant sources (i.e., the load allocation and wasteload allocation). When the breakdown and allocation are complete, the result is a TMDL, which must equal the load capacity.

The load capacity must be based on critical conditions—the conditions when water quality standards are most likely to be violated. If protective under critical conditions, a TMDL will be more than protective under other conditions. Because both load capacity and pollutant source loads vary, and not necessarily in concert, determining critical conditions can be more complicated than it may initially appear.

Another step in a load analysis is quantifying current pollutant loads by source. This step allows for the specification of load reductions as percentages from current conditions, considers equities in load reduction responsibility, and is necessary for pollutant trading to occur. A load is fundamentally a quantity of pollutant discharged over some period of time and is the product of concentration and flow. Due to the diverse nature of various pollutants, and the difficulty of strictly dealing with loads, the federal rules allow for "other appropriate measures" to be used when necessary (40 CFR 130.2). These other measures must still be quantifiable and relate to water quality standards, but they allow flexibility to deal with pollutant loading in more practical and tangible ways. The rules also recognize the particular difficulty of quantifying nonpoint loads and allow "gross allotment" as a load allocation where available data or appropriate predictive techniques limit more accurate estimates. For certain pollutants whose effects are long term, such as sediment and nutrients, EPA allows for seasonal or annual loads.

5.1 Instream Water Quality Targets

Instream water quality targets refer to desired bacteria concentrations in the water at any given time throughout the year. These concentrations are based on criteria set in Idaho's Water Quality Standards.

Bacteria TMDLs were developed for three AUs in the Payette River subbasin. TMDLs were developed to protect Primary and/or Secondary Contact Recreational uses, based on criteria set in Idaho Water Quality Standards (IDAPA 58.01.02.251.01).

5.1.1 Design Conditions

This TMDL will use a concentration target of 126 *E. coli*/100 mL, as a geometric mean; which will be met at all times. In order to protect recreational beneficial uses, the load allocations and required pollutant reductions will be calculated using critical low flow conditions. Streamflow data was not collected during the collection of bacteria samples due to inaccessibility to the sites. Additionally, flow alterations above the sampling sites would likely cause underestimated loading potential for the AU. No USGS gaging stations were available in the AUs addressed during the time this TMDL was written; therefore, estimates of the seven day average flow expected to recur every ten years (7Q10 flow) were used in calculating each TMDL. Additional flows, including average-annual and two-year peak flows, were also used to calculate a loading capacity for variable flows in the AU. Since the load capacity is dependent on flow, as the flow increases the load capacity increases; therefore, the load capacity estimates are considered flow variable. Table 7 provides target load capacities for varying flows at each AU. A web-based application known as StreamStats was used to estimate the varying flows. StreamStats uses drainage area and average precipitation to estimate low flow statistics on ungauged streams in Idaho (Hortness, 2006). The 7Q10 flow estimates produced by StreamStats were calculated for each AU addressed in this TMDL, and critical low flow values were used in calculating load capacities (Table 5).

Two of the AUs addressed in this TMDL are unconventionally structured and contain multiple hydrologically disconnected waterbodies within a single AU; other waterbodies in these AUs are not connected or in close proximity to the sampling location. Due to the unconventional structure of these AUs, it is important to note that data collected for this TMDL applies to the portion of the AU contained upstream of the sampling location. However, the target criterion discussed in this TMDL appropriately applies to all portions of the AU, because the data collected is representative of the AU as a whole. Figure 2 and Figure 3 show the sampling location for Anderson Creek and Dry Buck Creek, respectively; along with the portion of the AU assessed in this TMDL. All waterbodies contained within the AU are to meet the 126 *E. coli*/100mL of water criterion, though additional monitoring in other portions of the AU should be done to determine to determine a level of impairment and to guide implementation within the AU.

Table 5. Critical low flow for calculating *E. coli* load capacities based on StreamStats 7Q10 estimates.

Water Body	Assessment Unit	Critical Low Flow (cfs)	Latitude	Longitude
Tributaries to Black Canyon Reservoir - Anderson Creek	ID17050122SW002_02	0.0357	43.91782	-116.381872
Dry Buck, Peterson and Fleming Creeks - 1st and 2nd order	ID17050122SW003_02a	0.38	44.068828	-116.161724
Sand Hollow - 3rd order	ID17050122SW016_03	0.0346	43.937865	-116.675111

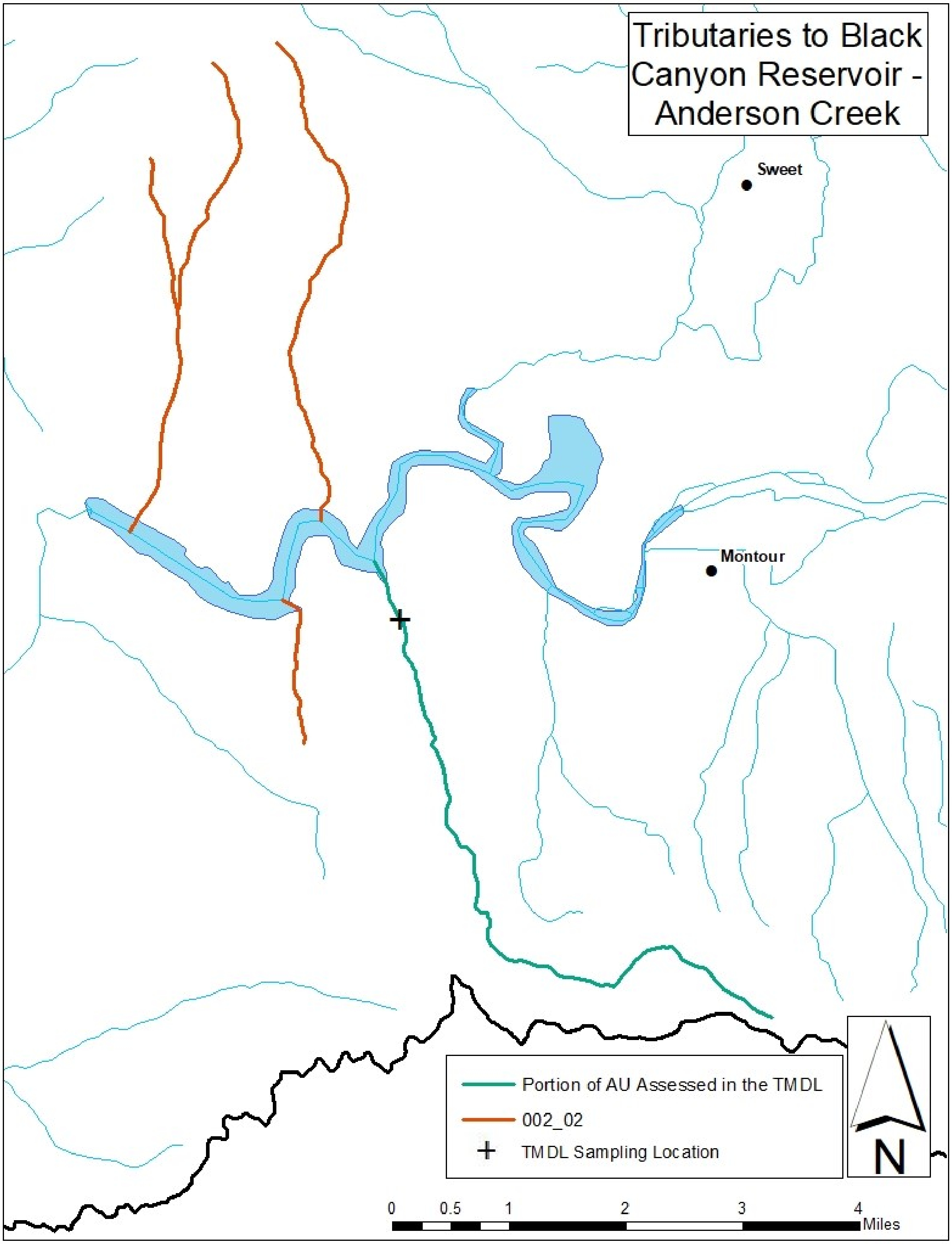

Figure 2. Overview of Anderson Creek sampling location, and portion of AU addressed in this TMDL.

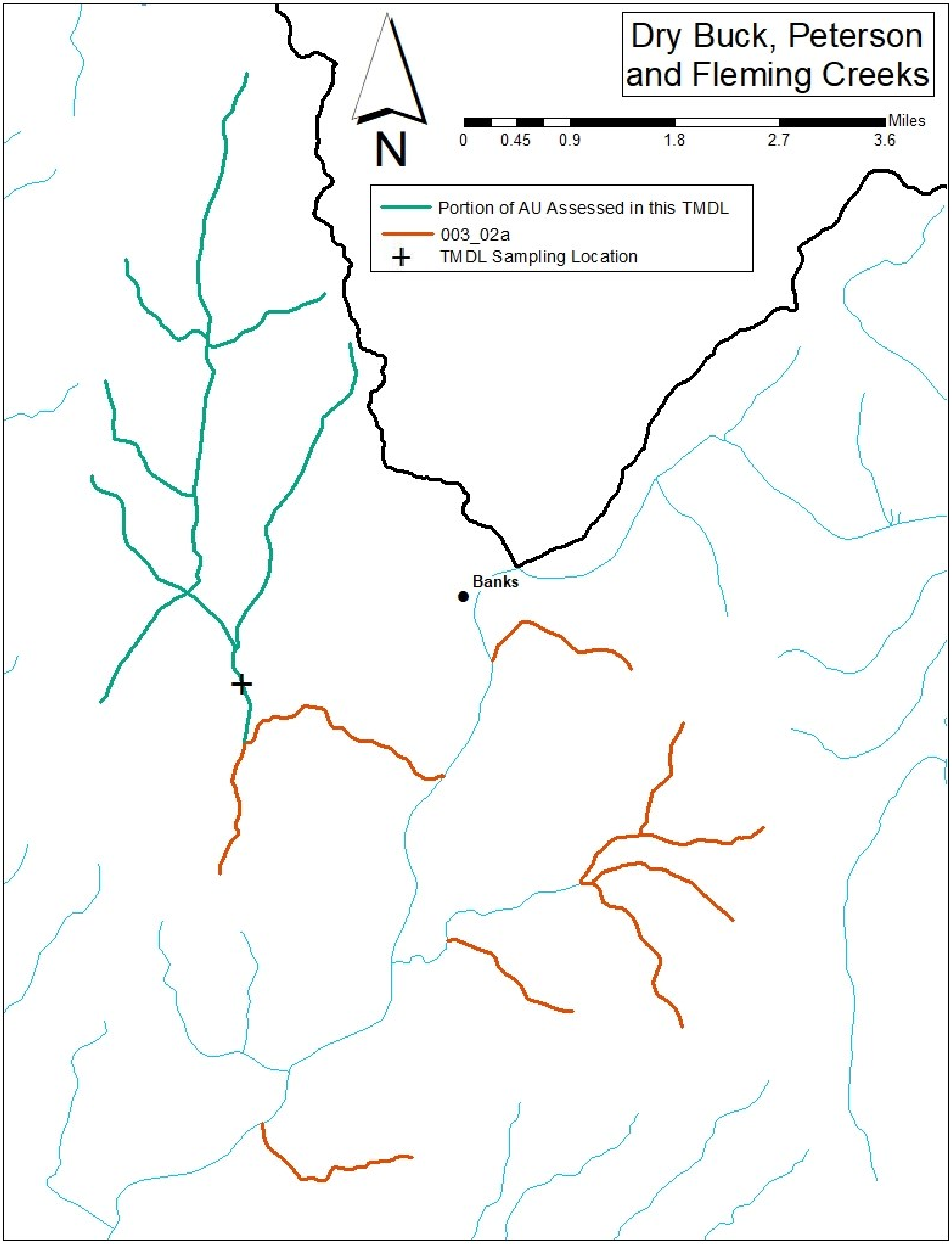

Figure 3. Overview of Dry Buck Creek sampling location and portion of AU addressed in this TMDL.

5.1.2 Target Selection

Bacteria targets are developed using Idaho's water quality standards (IDAPA 58.01.02.251.01). The numeric criterion for *E. coli* is not to exceed 126 *E. coli*/100 mL based on the geometric mean of five samples taken 3 to 7 days apart and collected at evenly spaced intervals over a 30-day period. A geometric mean is applied to minimize random variability in data associated with surface waters prone to short-term episodic spikes in bacteria concentrations. This criterion applies to both primary and secondary contact recreation. Single samples may be collected and used to determine general compliance by comparing to single sample criteria.

5.1.3 Water Quality Monitoring Points

AUs determined to be impaired by *E. coli* were monitored for compliance by collecting sufficient samples to calculate geometric means. Monitoring points from 2020 are shown in Table 6. Monitoring points were chosen based on a combination of public accessibility and historic sampling locations.

Table 6. 2020 E. coli monitoring points in Payette River subbasin.

Water Body	Assessment Unit	Latitude	Longitude
Tributaries to Black Canyon Reservoir - Anderson Creek	ID17050122SW002_02	43.91782	-116.381872
Dry Buck, Peterson and Fleming Creeks - 1st and 2nd order	ID17050122SW003_02a	44.068828	-116.161724
Sand Hollow - 3rd order	ID17050122SW016_03	43.937865	-116.675111

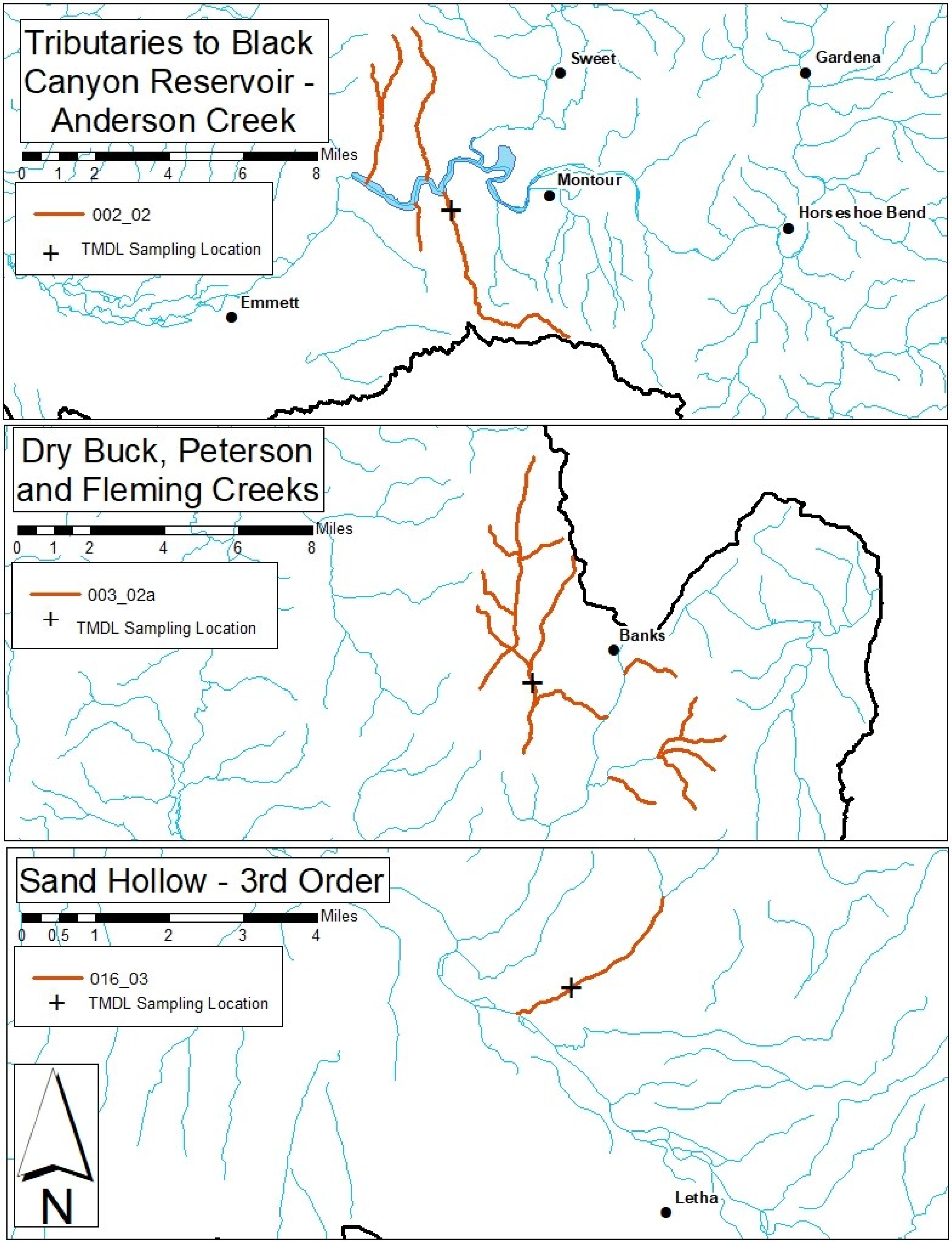

Figure 4. Sampling locations for the three AUs addressed in this TMDL.

5.2 Load Capacity

In bacteria TMDLs, the water quality standard is equal to the target concentration applied to a system. The target concentration and flow are functions of the loading capacity for the system, making capacity flow variable. The load capacity presented in Table 7 is based on various seasonal and annual flows. The load capacity is calculated as a function of 126 CFU/100mL as the target and the flow of the monitored AU according to the following example calculation:

$$E.coli\ load\ capacity\ (\mathrm{LC})\left(\frac{\mathrm{CFU}}{day}\right) = \mathrm{flow}\left(\frac{ft^3}{second}\right)\times target\ \left(\frac{CFU}{100\ mL}\right)\times 28{,}316.8\left(\frac{mL}{ft^3}\right)\times 86{,}400\left(\frac{second}{day}\right)$$

where:

the critical low flow is cubic feet per second (cfs)
126 colony forming units CFU / 100 milliliters (mL) is the *E. coli* target
28,316.8 mL per cubic foot is the volume conversion
86,400 seconds per day is the time conversion

Since the load capacity is dependent on flow, as the flow increases the load capacity increases; therefore, the load capacity is considered flow variable. Table 7 provides the load capacities for the AUs listed for *E. coli* impairment at different stream flows.

Table 7. E. coli bacteria load capacities calculated for variable flows (critical low flow, annual average flow, and 2-year peak flow).

Water Body (Assessment Unit)	Stream Flow Stage	Flow (cfs)	Target Concentration (CFU/ 100 mL)	Load Capacity (CFU/day)
Tributaries to Black Canyon Reservoir - Anderson Creek (ID17050122SW002_02)	Critical Low Flow	0.0357	126	1.1E+8
	Average Annual Flow	0.715		2.2E+9
	2-Year Peak Flow	20.9		6.44E+10
Dry Buck, Peterson and Fleming Creeks - 1st and 2nd order (ID17050122SW003_02a)	Critical Low Flow	0.38	126	1.17E+9
	Average Annual Flow	9.49		2.93E+10
	2-Year Peak Flow	75.6		2.33E+11
Sand Hollow - 3rd order (ID17050122SW016_03)	Critical Low Flow	0.0346	126	1.07E+8
	Average Annual Flow	1.15		3.55E+9
	2-Year Peak Flow	34.9		1.08E+11

*Notes: cubic feet per second (cfs); colony forming units per 100 milliliters (CFU/100 mL); colony forming units per day (CFU/day)

5.3 Estimates of Existing Pollutant Loads

Regulations allow that loadings "...may range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading" (40 CFR 130.2(g)). Samples collected in 2020 are used to estimate the current existing pollutant load.

Table 8 provides existing pollutant loads for the AUs addressed in this TMDL, using critical low flow in calculating load exceedances.

$$E.coli\ load\ capacity\ (\mathrm{LC})\left(\frac{\mathrm{CFU}}{day}\right)$$
$$= \mathrm{flow}\left(\frac{ft^3}{second}\right) \times geomean\left(\frac{cfu}{100\ mL}\right) \times 28{,}316.8\left(\frac{mL}{ft^3}\right) \times 86{,}400\left(\frac{second}{day}\right)$$

Table 8. Current *E. coli* loads from nonpoint sources in Payette River subbasin.

Water Body	Assessment Unit	Critical Low Flow (cfs)	Current Concentration (CFU/100 mL)	Existing Pollutant Load (CFU/day)
Tributaries to Black Canyon Reservoir - Anderson Creek	002_02	0.0357	1925	1.68E+9
Dry Buck, Peterson and Fleming Creeks - 1st and 2nd order	003_02a	0.38	336	3.12E+9
Sand Hollow - 3rd order	016_03	0.0346	531	4.49E+8

*Note: all assessment units begin with ID17050122SW
** Note: cubic feet per second (cfs); colony forming units per 100 milliliters (CFU/100 mL); colony forming units per day (CFU/day)

Samples were collected at all sites between late June and mid-July. Flows varied in Dry Buck and Anderson Creek during sampling, but remained mostly constant in Sand Hollow. This is likely due to the irrigation impact on Sand Hollow. In 2019, DEQ attempted to collect samples from Anderson Creek during the same general timeframe. The creek displayed stagnant to zero flow conditions by early July, and samples were not collected. Though the AU is designated as a perennial stream, Anderson Creek likely behaves more like an intermittent stream.

5.4 Load Allocations

This TMDL includes a load allocation only, as there are no point sources located in the AUs addressed. DEQ has selected a 10% explicit margin of safety to account for uncertainty associated with *E. coli* sampling methodology, and no separate numeric allocation for natural background sources was added. The load allocation to nonpoint sources will account for the any natural background sources in the watershed. The load allocation was calculated using a target load capacity of 126 CFU/100mL, as described in Idaho's contact recreation standards. A 10% margin of safety was subtracted from the target load capacity to determine the entirety of the load allocation. That concentration was converted to CFU/day using the equation found in

Section 5.3. A load reduction was calculated by subtracting the total existing load by the target load capacity, and then a percent reduction was calculated by dividing the load reduction by the total existing load. A breakdown of the load allocation can be found in Table 9.

Table 9. Nonpoint source E. coli load allocations for Payette River subbasin.

Water Body and Assessment Unit	Load Capacity	Margin of Safety	Load Allocation	Total Existing Load	Load Reduction	Percent Reduction (%)
Tributaries to Black Canyon Reservoir - Anderson Creek – (ID17050122SW002_02) - concentration (CFU/100mL)	126	12.6	113.4	1925	1799	93
Load (CFU/day)	1.10E+8	1.1E+7	9.9E+7	1.68E+9	1.57E+9	
Dry Buck, Peterson and Fleming Creeks - 1st and 2nd order – (ID17050122SW003_02a) - concentration (CFU/100mL)	126	12.6	113.4	336	210	63
Load (CFU/day)	1.17E+9	1.17E+8	1.05E+9	3.12E+9	1.95E+9	
Sand Hollow - 3rd order – (ID17050122SW016_03) - concentration (CFU/100mL)	126	12.6	113.4	531	405	76
Load (CFU/day)	1.07E+8	1.07E+7	9.63E+7	4.49E+8	3.42E+8	

Notes: colony forming units per 100 milliliters (CFU/100 mL); colony forming units per day (CFU/day)

5.4.1 Natural Background

Natural background sources of *E. coli* are inherent to the Payette River subbasin. Wildlife is present in the upper elevations of the subbasin and migrates to lower elevations as the winter season progresses. No numeric allocation was made for natural background, although we know there are likely natural sources that couldn't be quantified for this TMDL. Therefore, any existing natural background source is included in the load allocation.

5.4.2 Margin of Safety

Establishing a TMDL requires that a margin of safety be identified to account for uncertainty as required by federal regulations (40 CFR Part 130). The margin of safety is not allocated to any sources of a pollutant. A margin of safety is expressed as either an implicit or explicit portion of a water body's load capacity that is reserved to allow for uncertainty about the relationship between the pollutant loads and the quality of the receiving water body.

DEQ selected a 10% explicit margin of safety to account for uncertainty associated with *E. coli* sampling methodology. Field duplicate measurements are collected at the same site and time following the same sampling and analytical procedures, in order to quantify variability in sampling. One sample is termed the original sample and the other sample is termed the duplicate sample. The relative difference between the original sample and duplicate sample was calculated from data available in DEQ's water quality database from 2016 – 2019 (39 duplicate pairs) where the original sample result was less than the E. coli criterion (126 CFU/100 mL). The average relative difference in concentration between the original samples and duplicate samples was 10.7 CFU/100mL. This value represents the average uncertainty for individual sample results below the E. coli criterion, and corresponds to 8.5% of 126 CFU/100mL. A 10% margin of safety was selected to be conservative (protective) considering the data available for this analysis.

5.4.3 Seasonal Variation

The *E. coli* bacteria allocations apply daily throughout the year in order to protect secondary contact recreation, which may occur at any time during the year. The loading capacity is calculated using a flow variable model, which ensures *E. coli* targets are met throughout the year at all observed flows. While seasonal concentrations may vary, and therefore the reduction to meet the load capacity varies, meeting this allocation ensures water quality standards are attained for the protection of human health. Future monitoring should occur during critical low flows and when grazing allotments are most active.

Much like *E. coli* concentrations vary throughout the year, so do stream flows. Stream flow is dependent on many factors, both climatic and anthropogenic. Therefore, loading capacities can vary monthly and sometimes on even shorter time scales. Loading capacities are higher at higher stream flows, where greater volumes of water can accommodate larger bacteria concentrations. A larger bacteria concentration can be present in a stream at high flow and still maintain a geomean less than or equal to the water quality standard. Figure 5 provides an estimation of loading capacity throughout the year based on average monthly flows predicted to occur more than eighty percent of the time. These flows were predicted using USGS StreamStats; which infers the tool may not be applicable for streams where irrigation diversions are active (USGS, 2001). Using estimated monthly flows and target bacteria loads, it is shown that loading capacities are higher in late winter and spring.

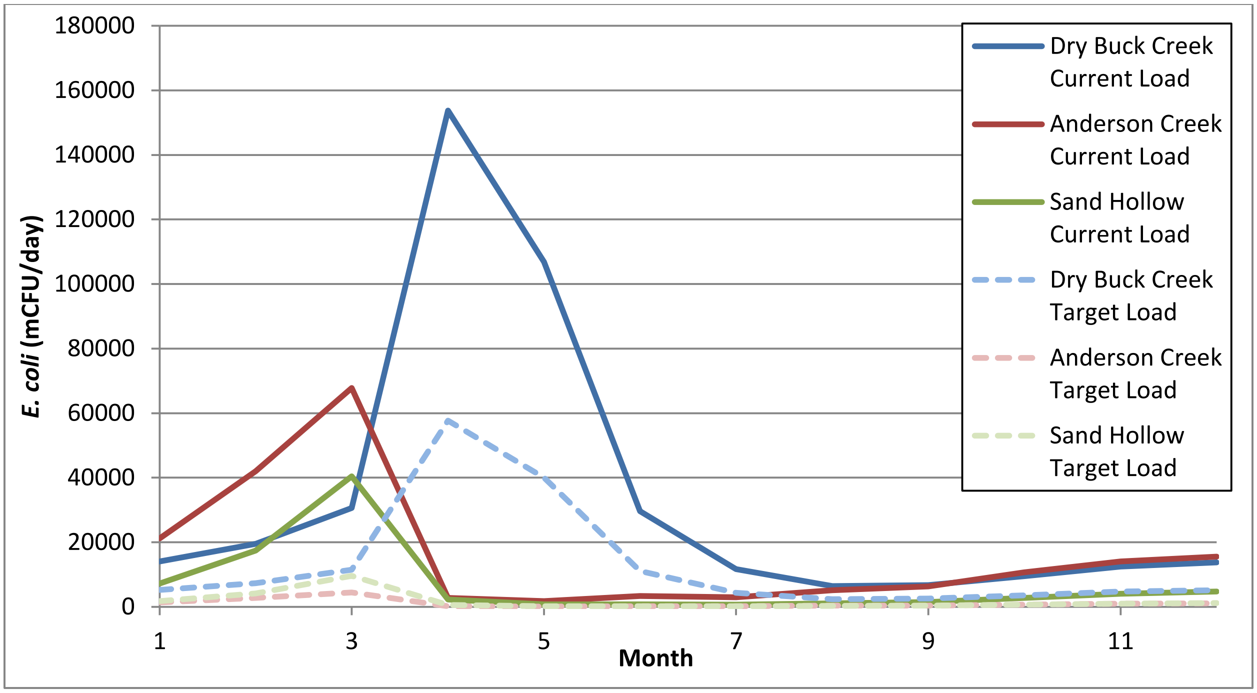

Figure 5. Estimated load capacities based on average flows making up 80% of the annual flow using million colony forming units (mCFU; mCFU=CFU x 10^6).

5.4.4 Reasonable Assurance

When TMDLs are developed for water bodies that are impaired by point sources only, the issuance of an IPDES or NPDES permit(s) provided reasonable assurance that the WLA in the TMDL will be achieved. When a TMDL is developed for water bodies impaired by both point and nonpoint sources, the TMDL must provide reasonable assurance that the load allocation will be achieved through nonpoint source controls for the TMDL to be approvable. For water bodies impaired only by nonpoint sources, a demonstration of reasonable assurance is not required (EPA 2002).

While a demonstration of reasonable assurance is not required in this TMDL, the State of Idaho relies on the *Idaho Nonpoint Source Management Plan*, TMDL implementation plans, § 319 grants, and agency partners to promote voluntary implementation of nonpoint source controls that may be needed to meet the reductions required by a TMDL’s load allocations.

For nonpoint source controls and BMP implementation, DEQ relies on the state’s § 319 program, local stakeholders, and agency partners to implement nonpoint source controls, which generally rely on voluntary implementation. A discussion those groups are provided in this section and more specific discussion of TMDL implementation strategies is found in Section 5.5.

The Clean Water Act §319 requires each state to develop and submit a nonpoint source management plan. The *Idaho Nonpoint Source Management Plan* was approved by EPA in March 2015 (DEQ 2015). The plan identifies programs to achieve implementation of nonpoint source best management practices (BMPs), includes a schedule for program milestones, outlines key agencies and agency roles, is certified by the state attorney general to ensure that adequate authorities exist to implement the plan, and identifies available funding sources.

Idaho's nonpoint source management program describes many of the voluntary and regulatory approaches the state will take to abate nonpoint pollution sources. One of the prominent programs described in the plan is the provision for public involvement, including basin advisory groups and WAGs. The Lower Payette Watershed Advisory Group is the designated WAG for the Payette River subbasin.

The Idaho water quality standards refer to existing authorities to control nonpoint pollution sources in Idaho. Some of these authorities and responsible agencies are listed in Table 10.

Table 10. State of Idaho's regulatory authority for nonpoint pollution sources.

Authority	Water Quality Standard	Responsible Agency
Rules Pertaining to the Idaho Forest Practices Act (IDAPA 20.02.01)	58.01.02.350.03(a)	Idaho Department of Lands
Solid Waste Management Rules and Standards (IDAPA 58.01.06)	58.01.02.350.03(b)	Idaho Department of Environmental Quality
Individual/Subsurface Sewage Disposal Rules (IDAPA 58.01.03)	58.01.02.350.03(c)	Idaho Department of Environmental Quality
Stream channel Alteration Rules (IDAPA 37.03.07)	58.01.02.350.03(d)	Idaho Department of Water Resources
Rules Governing Exploration, Surface Mining and Closure of Cyanidation Facilities (IDAPA 20.03.02)	58.01.02.350.03(f)	Idaho Department of Lands
Dredge and Placer Mining Operations in Idaho (IDAPA 20.03.01)	58.01.02.350.03(g)	Idaho Department of Lands
Rules Governing Dairy Waste (IDAPA 02.04.14)	58.01.02.350.03(h)	Idaho State Department of Agriculture

Idaho uses a voluntary approach to address agricultural nonpoint sources; however, regulatory authority is found in the water quality standards (IDAPA 58.01.02.350.01–03). IDAPA 58.01.02.055.07 refers to the Idaho Agricultural Pollution Abatement Plan (Ag Plan) (SCC and DEQ 2003), which provides direction to the agricultural community regarding approved BMPs. A portion of the Ag Plan outlines responsible agencies or elected groups (soil conservation districts) that will take the lead if nonpoint source pollution problems need to be addressed. For agricultural activity, the Ag Plan assigns the local soil conservation districts to assist the landowner/operator with developing and implementing BMPs to abate nonpoint source pollution associated with the land use. If a voluntary approach does not succeed in abating the pollutant problem, the state may seek injunctive relief for those situations determined to be an imminent and substantial danger to public health or the environment (IDAPA 58.01.02.350.02(a)).

The Idaho water quality standards and wastewater treatment requirements specify that if water quality monitoring indicates that water quality standards are not being met, even with the use of BMPs or knowledgeable and reasonable practices, the state may request that the designated agency evaluate and/or modify the BMPs to protect beneficial uses. If necessary, the state may seek injunctive or other judicial relief against the operator of a nonpoint source activity in accordance with the DEQ director's authority provided in Idaho Code §39-108 (IDAPA 58.01.02.350). The water quality standards list designated agencies responsible for reviewing and revising nonpoint source BMPs: the Idaho Department of Lands for timber harvest activities, oil and gas exploration and development, and mining activities; Idaho Soil and Water

Conservation Commission for grazing and agricultural activities, Idaho Transportation Department for public road construction, Idaho State Department of Agriculture for aquaculture, and DEQ for all other activities (IDAPA 58.01.02.010.24).

5.4.5 Construction Storm Water and TMDL Wasteload Allocations

There are no wasteload allocations in this TMDL, and general/construction storm water is not considered a source of concern for the three AUs. Storm water runoff is water from rain or snowmelt that does not immediately infiltrate into the ground and flows over or through natural or man-made storage or conveyance systems. When undeveloped areas are converted to land uses with impervious surfaces—such as buildings, parking lots, and roads—the natural hydrology of the land is altered and can result in increased surface runoff rates, volumes, and pollutant loads.

5.4.6 Reserve for Growth

A growth reserve has not been included in this TMDL. The load capacity has been allocated to the existing sources in the watershed. Any new point sources will need to obtain an allocation from the existing load allocation, which would be reallocated in a TMDL revision. No new permitted point sources are anticipated in the subbasin.

5.5 Implementation Strategies

DEQ recognizes that implementation strategies for TMDLs may need to be modified if monitoring shows that TMDL goals are not being met or significant progress is not being made toward achieving the goals. Reasonable assurance (addressed in section 5.4.4) for the TMDL to meet water quality standards is based on the implementation strategy.

5.5.1 Time Frame

E. coli impairments are extremely variable by season and mitigation options. For example, exclosure fencing can cause nearly instant improvements, if the primary source for the *E. coli* is from domesticated animal sources. Land use and site observations indicate sources are likely from livestock, but further investigations into additional sources can be done in the future if mitigation options for livestock do not have expected impacts.

5.5.2 Approach

Funding provided under Clean Water Act §319 and other funds will be used to encourage voluntary projects to reduce nonpoint source pollution. Voluntary projects would include best management practices (BMPs) recommended in the Idaho Agricultural Best Management Practices Field Guide (RPU, 2013). Recommended BMPs appropriate for this TMDL might include:

- Fencing (NRCS Code 382, Idaho NRCS)
- Use Exclusion (NRCS Code 472, Idaho NRCS)
- Watering Facility (NRCS Code 614, Idaho NRCS)

The implementation of one or more BMPs in cooperation with appropriate land management agencies and landowners can be an effective remediation for impaired waterbodies. Not every BMP is appropriate for every situation, and each case should be evaluated individually. Idaho Code §39-3621 identifies the Idaho Soil Conservation Commission (ISCC) as the designated state agency for agricultural and grazing activities, and appropriate BMPs can be selected by ISCC; along with collaborating agencies and landowners.

5.5.3 Responsible Parties

DEQ and the designated management agencies in Idaho have primary responsibility for overseeing implementation in cooperation with landowners and managers. In Idaho, these agencies, and their federal and state partners, are charged by the Clean Water Act to lend available technical assistance and other appropriate support to local efforts for water quality improvements. Designated state agencies are responsible for assisting with preparation of specific implementation plans, particularly for those resources for which they have regulatory authority or programmatic responsibilities:

- Idaho Soil and Water Conservation Commission for grazing and agricultural activities
- DEQ for all other activities

In addition to the designated management agencies, the public—through the WAG and other equivalent organizations or processes—will have opportunities to be involved in developing the implementation plan to the maximum extent practical. Public participation will significantly affect public acceptance of the document and the proposed control actions. Stakeholders (e.g., landowners, local governing authorities, taxpayers, industries, and land managers) are the most educated regarding the pollutant sources and will be called upon to help identify the most appropriate control actions for each area. Experience has shown that the best and most effective implementation plans are those developed with substantial public cooperation and involvement.

5.5.4 Implementation Monitoring Strategy

The objectives of a monitoring strategy are to demonstrate long-term recovery, better understand natural variability, track project and BMP implementation, and track the effectiveness of TMDL implementation. This monitoring and feedback mechanism is a major component of the reasonable assurance component of the TMDL implementation plan.

Monitoring will provide information on progress being made toward achieving TMDL allocations and water quality standards and will help in the interim evaluation of progress, including in the development of 5-year reviews and future TMDLs. It is suggested that additional monitoring be performed within the AUs covered in this TMDL, in order to determine more specific load allocations for segments of the AU not assessed by the sampling locations. The target load capacities discussed in this TMDL apply to the AUs discussed as a whole, but the load allocations calculated from existing loads apply only to the segments represented by the sampling locations.

The implementation plan will be tracked by accounting for the numbers, types, and locations of projects, BMPs, educational activities, or other actions taken to improve or protect water quality. Implementation plan monitoring will include watershed monitoring and BMP monitoring.

6 Conclusions

This TMDL provides *E. coli* loading allocations for three AUs currently listed in Category 5 for bacteria impairment. Of the three AUs listed, all have relatively high current bacteria loads and require at least a 60% reduction in bacteria. Anderson Creek has the highest observed geomean, but also demonstrates the lowest critical flows annually; with questions regarding its perennial status. During irrigation, Sand Hollow may act more as an agricultural drain than a creek hydrologically, and therefore the estimated critical low flows may be significantly underestimated. Samples collected from Sand Hollow in 2020 were sampled during irrigation season, and flows were observed to be much higher due to water diversions than estimated in the variable flow model. Therefore, the geomean observed during irrigation season may be higher during non-irrigation months. This is due to the seasonal variability in flow and water conditions. Changes in flow can impact concentrations of bacteria measured in the water, as can seasonal changes in water temperature; as bacteria survive better and longer in warmer waters. Though seasonal variability occurs, DEQ sampling is designed to capture critical periods when beneficial uses are most applicable. A TMDL is necessary for all three AUs in order to help maintain state criteria for beneficial uses at all times during the year.

Table 11. Summary of assessment outcomes.

Assessment Unit Name	Assessment Unit Number	Pollutant	TMDL(s) Completed	Recommended Changes to Next Integrated Report	Justification
Tributaries to Black Canyon Reservoir - Anderson Creek	002_02	*Escherichia coli*	Yes	List in Category 4a for *Escherichia coli*	*Escherichia coli* TMDL completed
Dry Buck, Peterson and Fleming Creeks - 1st and 2nd order	003_02a	*Escherichia coli*	Yes	List in Category 4a for *Escherichia coli*	*Escherichia coli* TMDL completed
Sand Hollow - 3rd order	016_03	*Escherichia coli*	Yes	List in Category 4a for *Escherichia coli*	*Escherichia coli* TMDL completed

Note: All assessment unit numbers begin with ID17050122SW.

This document was prepared with input from the public, as described in Appendix E. Following the public comment period, comments and DEQ responses will also be included in this appendix, and a distribution list will be included in Appendix F.

References Cited

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GIS Coverages

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Glossary

§303(d)
Refers to section 303 subsection “d” of the Clean Water Act. Section 303(d) requires states to develop a list of water bodies that do not meet water quality standards. This section also requires total maximum daily loads (TMDLs) be prepared for listed waters. Both the list and the TMDLs are subject to United States Environmental Protection Agency approval.

Assessment Unit (AU)
A group of similar streams that have similar land use practices, ownership, or land management. However, stream order is the main basis for determining AUs. All the waters of the state are defined using AUs, and because AUs are a subset of water body identification numbers, they tie directly to the water quality standards so that beneficial uses defined in the water quality standards are clearly tied to streams on the landscape.

Beneficial Use
Any of the various uses of water that are recognized in water quality standards, including, but not limited to, aquatic life, recreation, water supply, wildlife habitat, and aesthetics.

Beneficial Use Reconnaissance Program (BURP)
A program for conducting systematic biological and physical habitat surveys of water bodies in Idaho. BURP protocols address lakes, reservoirs, and wadeable streams and rivers.

Exceedance
A violation (according to DEQ policy) of the pollutant levels permitted by water quality criteria.

Fully Supporting
In compliance with water quality standards and within the range of biological reference conditions for all designated and existing beneficial uses as determined through the *Water Body Assessment Guidance* (Grafe et al. 2002).

Load Allocation (LA)
A portion of a water body’s load capacity for a given pollutant that is given to a particular nonpoint source (by class, type, or geographic area).

Load
The quantity of a substance entering a receiving stream, usually expressed in pounds or kilograms per day or tons per year. Load is the product of flow (discharge) and concentration.

Load Capacity (LC)
How much pollutant a water body can receive over a given period without causing violations of state water quality standards. Upon allocation to various sources, a margin of safety, and natural background contributions, it becomes a total maximum daily load.

Margin of Safety (MOS)
An implicit or explicit portion of a water body’s load capacity set aside to allow for uncertainly about the relationship between the pollutant loads and the quality of the receiving water body. The margin of safety is a required component of a total maximum daily load (TMDL) and is often incorporated into conservative assumptions used to develop the TMDL (generally within the calculations and/or models). The margin of safety is not allocated to any sources of pollution.

Nonpoint Source

A dispersed source of pollutants generated from a geographical area when pollutants are dissolved or suspended in runoff and then delivered into waters of the state. Nonpoint sources are without a discernable point or origin. They include, but are not limited to, irrigated and nonirrigated lands used for grazing, crop production, and silviculture; rural roads; construction and mining sites; log storage or rafting; and recreation sites.

Not Assessed (NA)

A concept and an assessment category describing water bodies that have been studied but are missing critical information needed to complete an assessment.

Not Fully Supporting

Not in compliance with water quality standards or not within the range of biological reference conditions for any beneficial use as determined through the *Water Body Assessment Guidance* (Grafe et al. 2002).

Point Source

A source of pollutants characterized by having a discrete conveyance, such as a pipe, ditch, or other identifiable "point" of discharge into a receiving water. Common point sources of pollution are industrial and municipal wastewater plants.

Pollutant

Generally, any substance introduced into the environment that adversely affects the usefulness of a resource or the health of humans, animals, or ecosystems.

Pollution

A very broad concept that encompasses human-caused changes in the environment that alter the functioning of natural processes and produce undesirable environmental and health effects. Pollution includes human-induced alteration of the physical, biological, chemical, and radiological integrity of water and other media.

Stream Order

Hierarchical ordering of streams based on the degree of branching. A 1st-order stream is an unforked or unbranched stream. Under Strahler's (1957) system, higher-order streams result from the joining of two streams of the same order.

Total Maximum Daily Load (TMDL)

A TMDL is a water body's load capacity after it has been allocated among pollutant sources. It can be expressed on a time basis other than daily if appropriate. Sediment loads, for example, are often calculated on an annual basis. A TMDL is equal to the load capacity, such that load capacity = margin of safety + natural background + load allocation + wasteload allocation = TMDL. In common usage, a TMDL also refers to the written document that contains the statement of loads and supporting analyses, often incorporating TMDLs for several water bodies and/or pollutants within a given watershed.

Wasteload Allocation (WLA)

The portion of receiving water's load capacity that is allocated to one of its existing or future point sources of pollution. Wasteload allocations specify how much pollutant each point source may release to a water body.

Water Body

A stream, river, lake, estuary, coastline, or other water feature, or portion thereof.

Water Quality Criteria	Levels of water quality expected to render a body of water suitable for its designated uses. Criteria are based on specific levels of pollutants that would make the water harmful if used for drinking, swimming, farming, aquatic habitat, or industrial processes.
Water Quality Standards	State-adopted and United States Environmental Protection Agency-approved ambient standards for water bodies. The standards prescribe the use of the water body and establish the water quality criteria that must be met to protect designated uses.

Appendix A. Beneficial Uses

Idaho water quality standards (IDAPA 58.01.02) list beneficial uses and set water quality goals for waters of the state. Idaho water quality standards require that surface waters of the state be protected for beneficial uses, wherever attainable (IDAPA 58.01.02.050.02). These beneficial uses are interpreted as existing uses, designated uses, and presumed uses.

Existing Uses

Existing uses under the Clean Water Act are "those uses actually attained in the water body on or after November 28, 1975, whether or not they are included in the water quality standards" (40 CFR 131.3). The existing instream water uses and the level of water quality necessary to protect the uses shall be maintained and protected (IDAPA 58.01.02.051.01). Existing uses need to be protected, whether or not the level of water quality to fully support the uses currently exists. A practical application of this concept would be to apply the existing use of salmonid spawning to a water that supported salmonid spawning since November 28, 1975, but does not now due to other factors, such as blockage of migration, channelization, sedimentation, or excess heat.

Designated Uses

Designated uses under the Clean Water Act are "those uses specified in water quality standards for each water body or segment, whether or not they are being attained" (40 CFR 131.3). Designated uses are simply uses officially recognized by the state. In Idaho, these include uses such as aquatic life support, recreation in and on the water, domestic water supply, and agricultural uses. Multiple uses often apply to the same water; in this case, water quality must be sufficiently maintained to meet the most sensitive use (designated or existing). Designated uses may be added or removed using specific procedures provided for in state law, but the effect must not be to preclude protection of an existing higher quality use such as cold water aquatic life or salmonid spawning. Designated uses are described in the Idaho water quality standards (IDAPA 58.01.02.100) and specifically listed by water body in sections 110–160.

Undesignated Surface Waters and Presumed Use Protection

In Idaho, due to a change in scale of cataloging waters in 2000, most water bodies listed in the tables of designated uses in the water quality standards do not yet have specific use designations (IDAPA 58.01.02.110–160). The water quality standards have three sections that address nondesignated waters. Sections 101.02 and 101.03 specifically address nondesignated man-made waterways and private waters. Man-made waterways and private waters have no presumed use protections. Man-made waters are protected for the use for which they were constructed unless otherwise designated in the water quality standards. Private waters are not protected for any beneficial uses unless specifically designated in the water quality standards.

All other undesignated waters are addressed by section 101.01. Under this section, absent information on existing uses, DEQ presumes that most Idaho waters will support cold water aquatic life and either primary or secondary contact recreation (IDAPA 58.01.02.101.01). To protect these so-called presumed uses, DEQ applies the numeric cold water and recreation criteria to undesignated waters. If in addition to presumed uses, an additional existing use (e.g., salmonid spawning) exists, then the additional numeric criteria for salmonid spawning would also apply (e.g., intergravel dissolved oxygen, temperature) because of the requirement to protect water quality for that existing use. However, if some other use that requires less stringent criteria for protection (such as seasonal cold aquatic life) is found to be an existing use, then a use designation (rulemaking) is needed before that use can be applied in lieu of cold water criteria (IDAPA 58.01.02.101.01).

Appendix B. State and Site-Specific Water Quality Standards and Criteria

Table B1. Selected numeric criteria supportive of designated beneficial uses in Idaho water quality standards.

Parameter	Primary Contact Recreation	Secondary Contact Recreation	Cold Water Aquatic Life	Salmonid Spawning[a]
Water Quality Standards: IDAPA 58.01.02.250–251				
Bacteria				
• Geometric mean	<126 *E. coli*/100 mL[a]	<126 *E. coli*/100 mL	—	—
• Single sample	≤406 *E. coli*/100 mL	≤576 *E. coli*/100 mL	—	—

[a] *Escherichia coli* per 100 milliliters

Appendix C. Data Sources

Table C1. Data sources for Payette River subbasin assessment.

Water Body/Area	Data Source	Type of Data	Collection Date
Tributaries to Black Canyon Reservoir (Anderson Creek)	DEQ Boise Regional Office	*E. coli* Concentrations/Geomean	June – July 2020
Dry Buck, Peterson & Fleming Creeks - 1st & 2nd order	DEQ Boise Regional Office	*E. coli* Concentrations/Geomean	June – July 2020
Sand Hollow - 3rd order	DEQ Boise Regional Office	*E. coli* Concentrations/Geomean	June – July 2020

Table C2. Individual and geometric mean data for Tributaries to Black Canyon Reservoir (Anderson Creek; ID107050122SW002_02).

Sample ID	Sample Date	Sample Time	Method	Pollutant	Result	Single Sample Value	Unit
BCT_001	6/29/2020	11:45	SM 9223B-QT-CT	E. coli	>2420	2420	MPN/100 mL
BCT_002	7/2/2020	10:45	SM 9223B-QT-CT	E. coli	770	770	MPN/100 mL
BCT_003	7/6/2020	12:07	SM 9223B-QT-CT	E. coli	>2420	2420	MPN/100 mL
BCT_004	7/9/2020	11:25	SM 9223B-QT-CT	E. coli	>2420	2420	MPN/100 mL
BCT_005	7/13/2020	11:35	SM 9223B-QT-CT	E. coli	>2420	2420	MPN/100 mL
				Geometric Mean		**1925**	

Table C3. Individual and geometric mean data for Sand Hollow - 3rd order (ID107050122SW016_03).

Sample ID	Sample Date	Sample Time	Method	Pollutant	Result	Single Sample Value	Unit
SHC_001	6/29/2020	12:45	SM 9223B-QT-CT	E. coli	1553	1553	MPN/100 mL
SHC_002	7/2/2020	11:40	SM 9223B-QT-CT	E. coli	157	157	MPN/100 mL
SHC_003	7/6/2020	13:05	SM 9223B-QT-CT	E. coli	727	727	MPN/100 mL
SHC_004	7/9/2020	12:30	SM 9223B-QT-CT	E. coli	<1	0	MPN/100 mL
SHC_005	7/9/2020	12:30	SM 9223B-QT-CT	E. coli	517	517	MPN/100 mL
SHC_006	7/9/2020	12:30	SM 9223B-QT-CT	E. coli	461	0	MPN/100 mL
SHC_007	7/13/2020	12:45	SM 9223B-QT-CT	E. coli	461	461	MPN/100 mL
				Geometric Mean		**531**	

*SHC_004 indicates a Blank sample
**SHC_006 Indicates a duplicate sample to SHC_005

Table C4. Individual and geometric mean data for Dry Buck, Peterson & Fleming Creeks - 1st & 2nd order (ID107050122SW003_02a).

Sample ID	Sample Date	Sample Time	Method	Pollutant	Result	Single Sample Value	Unit
DBC_001	6/29/2020	10:25	SM 9223B-QT-CT	E. coli	1120	1120	MPN/100 mL
DBC_002	7/2/2020	9:20	SM 9223B-QT-CT	E. coli	185	185	MPN/100 mL
DBC_003	7/2/2020	9:20	SM 9223B-QT-CT	E. coli	<1	0	MPN/100 mL
DBC_004	7/2/2020	9:20	SM 9223B-QT-CT	E. coli	194	0	MPN/100 mL
DBC_005	7/6/2020	10:51	SM 9223B-QT-CT	E. coli	411	411	MPN/100 mL
DBC_006	7/9/2020	10:05	SM 9223B-QT-CT	E. coli	222	222	MPN/100 mL
DBC_007	7/13/2020	10:05	SM 9223B-QT-CT	E. coli	228	228	MPN/100 mL
				Geometric Mean		**336**	

*DBC_003 indicates a Blank sample
**DBC_004 Indicates a duplicate sample to DBC_002

Appendix D. Managing Stormwater

Municipal Separate Storm Sewer Systems

Polluted storm water runoff is commonly transported through municipal separate storm sewer systems (MS4s), from which it is often discharged untreated into local water bodies. An MS4, according to 40 CFR 122.26(b)(8), is a conveyance or system of conveyances that meets the following criteria:

- Owned by a state, city, town, village, or other public entity that discharges to waters of the US
- Designed or used to collect or convey storm water (including storm drains, pipes, ditches, etc.)
- Not a combined sewer
- Not part of a publicly owned treatment works (sewage treatment plant)

To prevent harmful pollutants from being washed or dumped into an MS4, operators must obtain an Idaho Pollutant Discharge Elimination System (NPDES) permit from DEQ, implement a comprehensive municipal storm water management program (SWMP), and use best management practices (BMPs) to control pollutants in storm water discharges to the maximum extent practicable.

Industrial Storm Water Requirements

Storm water runoff picks up industrial pollutants and typically discharges them into nearby water bodies directly or indirectly via storm sewer systems. When facility practices allow exposure of industrial materials to storm water, runoff from industrial areas can contain toxic pollutants (e.g., heavy metals and organic chemicals) and other pollutants such as trash, debris, and oil and grease. This increased flow and pollutant load can impair water bodies, degrade biological habitats, pollute drinking water sources, and cause flooding and hydrologic changes, such as channel erosion, to the receiving water body.

Multi-Sector General Permit and Storm Water Pollution Prevention Plans

In Idaho, if an industrial facility discharges industrial storm water into waters of the US, the facility must be permitted under the most recent Multi-Sector General Permit (MSGP). To obtain an MSGP, the facility must prepare a storm water pollution prevention plan (SWPPP) before submitting a notice of intent for permit coverage. The SWPPP must document the site description, design, and installation of control measures; describe monitoring procedures; and summarize potential pollutant sources. A copy of the SWPPP must be kept on site in a format that is accessible to workers and inspectors and be updated to reflect changes in site conditions, personnel, and storm water infrastructure.

Industrial Facilities Discharging to Impaired Water Bodies

Any facility that discharges to an impaired water body must monitor all pollutants for which the water body is impaired and for which a standard analytical method exists (see 40 CFR Part 136).

Also, because different industrial activities have sector-specific types of material that may be exposed to storm water, EPA grouped the different regulated industries into 29 sectors, based on their typical activities. Part 8 of the MSGP details the storm water management practices and monitoring that are required for the different industrial sectors. Specific requirements for impaired waters are identified in the MSGP for Idaho dischargers.

TMDL Industrial Storm Water Requirements

When a stream is on Idaho's §303(d) list and has a TMDL developed, DEQ may incorporate a wasteload allocation for industrial storm water activities under the MSGP. However, most load analyses developed in the past have not identified sector-specific numeric wasteload allocations for industrial storm water activities. Industrial storm water activities are considered in compliance with provisions of the TMDL if operators obtain an MSGP under the IPDES program and implement the appropriate BMPs. Typically, operators must also follow specific requirements to be consistent with any local pollutant allocations. The next MSGP will have specific monitoring requirements that must be followed.

Construction Storm Water

The Clean Water Act requires operators of construction sites to obtain permit coverage to discharge storm water to a water body or municipal storm sewer. In Idaho, EPA issued a general permit for storm water discharges from construction sites in 2017. DEQ anticipates issuing a state IPDES permit for construction storm water discharges in 2022.

Construction General Permit (CGP) and Storm Water Pollution Prevention Plans

If a construction project disturbs more than 1 acre of land (or is part of a larger common development that will disturb more than 1 acre), the operator is required to apply for CGP coverage after developing a site-specific SWPPP. The SWPPP must provide for the erosion, sediment, and pollution controls they intend to use; inspection of the controls periodically; and maintenance of BMPs throughout the life of the project. Operators are required to keep a current copy of their SWPPP on site or at an easily accessible location.

TMDL Construction Storm Water Requirements

When a stream is on Idaho's §303(d) list and has a TMDL developed, DEQ may incorporate a gross wasteload allocation for anticipated construction storm water activities. Most loads developed in the past did not have a numeric wasteload allocation for construction storm water activities. Construction storm water activities are considered in compliance with provisions of the TMDL if operators obtain a CGP under the IPDES program and implement the appropriate BMPs. Typically, operators must also follow specific requirements to be consistent with any local pollutant allocations. The CGP has monitoring requirements that must be followed.

Postconstruction Storm Water Management

Many communities throughout Idaho are currently developing rules for postconstruction storm water management. Sediment is usually the main pollutant of concern in construction site storm water. DEQ's *Catalog of Storm Water Best Management Practices for Idaho Cities and Counties* (DEQ 2005b) should be used to select the proper suite of BMPs for the specific site, soils, climate, and project phasing in order to sufficiently meet the standards and requirements of the

CGP to protect water quality. Where local ordinances have more stringent and site-specific standards, those are applicable.

Appendix E. Public Participation and Public Comments

This TMDL was developed with participation from Lower Payette River WAG

Meeting	Date	Location
1	12/17/2020	DEQ Zoom Conference
2	06/01/2021	Squaw Creek Soil and Water Conservation District

There were no public comments provided during the public comment period.

Appendix F. Distribution List

Payette River Watershed Advisory Group

Gem County Soil and Water Conservation District

Squaw Creek Soil and Water Conservation District

US Environmental Protection Agency